Amendments to the Specification

Please amend the paragraph starting on Page 10, line 6, as follows:

An auxiliary latch 20 is mounted within the housing 12 parallel to the latch bolt 16, and comprises a front portion that extends from a safety bolt opening 32 in the front plate 14. The auxiliary latch [[18]] 20 is urged by safety bolt spring 34 to the extended position, and the auxiliary latch [[18]] 20 can be moved to a retracted position within the housing 10, against the force of ~~string~~ spring 34, by a force applied to the end of auxiliary latch [[18]] 20. The operation of auxiliary latch [[18]] 20 and spring 34 cooperate to hold the latch bolt 14 at a predetermined position. In one embodiment according to the present invention, the auxiliary latch [[18]] 20 is arranged such that when in its retracted position, the latch bolt 16 can only be retracted by the inside doorknob and the key cylinder. When the auxiliary latch 20 is in its extended position the latch bolt 16 can be retracted. In operation, when the door is closed, the auxiliary latch 20 can be compressed by the frame of the door or the strike plate, and holds the latch bolt 16 at its extended position such that the latch bolt 16 is blocked against operation driven by the doorknob.

Please amend the paragraph starting on Page 12, line 19, as follows:

The lever's rocker arm end 72 has a slider surface 74 that cooperates with the rocker arm 72 to extend or retract the coupling member 36. As the rocker arm end 72 moves toward the

back of the housing 12, opposite the front plate 14, the end of the rocker arm 64 in contact with the slider surface 74 slides [[up]] down the surface 74. This causes the rocker arm 64 to rotate about the rocker arm pin 76 and push the coupling member 36 to its retracted position wherein the door handles cannot turn the hub mechanism. When the rocker arm end 72 moves toward the ~~flange~~ front plate 14, the rocker arm 64 rotates the opposite direction around rocker arm pin 76, allowing the coupling member 36 to move to its extended position, wherein the doorknobs can turn the hub mechanism 22. The rocker arm 64 is held in contact with the slider surface 74, by rocker arm spring 78 that runs between the rocker arm 64 and the lever's rocker arm end 72.

Please amend the paragraph starting on Page 13, line 28, as follows:

As shown in FIGs. 4-6, when the lock 10 shown in FIGs. 1 and 2 is to be configured in the fail safe mode the plunger 104 is inserted into the ~~plunger's~~ solenoid's longitudinal bore [[122]] 108. The rod/tip assembly 106 is inserted into the solenoid's longitudinal bore 108, though a first solenoid opening to be mounted to the plunger. The lower threaded section 118 is threaded into the bore threaded section 124 through the opening of the plunger's longitudinal bore 122 at the plunger's tapered end. As shown in FIG. 5, when power is applied to the solenoid assembly 100, the plunger is drawn fully into the solenoid bore 108 such that the rod tip assembly extends from the solenoid bore 108. As shown in FIG. 6, when power is off (such as in a fail condition) the plunger 104 moves back from

its fully drawn position such that the rod/tip assembly 106 is partially drawn within the longitudinal bore 108.

Please amend the paragraph starting on Page 14, line 21, as follows:

In another embodiment according to the present invention, a solenoid cradle 132 is provided ~~that can be provided~~ to hold the solenoid body 102. The cradle 132 is at least partially hollow and shaped to accept the solenoid body 102 and comprises a bottom surface and four walls. The solenoid body 102 rests within the cradle with the walls preventing sideways or front and back movement of the solenoid body 102. The solenoid body 102 is held in the cradle 132 between the back plate and cover plate in an opening/indentation to hold the solenoid body in the housing. The cradle 132 can be held in place in many different ways, such as the cradle 132 resting in [[a]] an opening/indentation in one of the housing walls. In another embodiment according to the present invention, the cradle rests in the back plate 13 of the housing 12 by mounting posts 134 that are inserted into mounting holes 135 of the back plate 13. When the lock is assembled and the housing cover plate is in place, the cover plate blocks the solenoid body 102 from moving out of the cradle 132. The solenoid body is held in place between the cradle bottom surface and the housing cover plate, and the cradle walls. By utilizing this cradle arrangement, the solenoid assembly 100 can be easily removed to have its mode changed, and then placed back in the cradle. This arrangement avoids the time and inconvenience of having to remove and replace a solenoid that is fixed to the lock housing by screws,

bolts, welds, etc.

Please amend the paragraph starting on Page 16, line 29, as follows:

FIGs. 1 and 10 show operation of the lock 10 in the fail safe mode with the solenoid body 102, plunger 104 and rod/tip assembly 106 arranged as shown in FIGs. 4-6. Power is applied to the lock 10 and solenoid body 102 over lock conductors 138, which supply an electrical signal to the solenoid electrical conductors 112 to energize the solenoid 102. The solenoid body 102 is nested in the cradle 132 and held in place such that the plunger 104 and rod/tip assembly 106 can operate on the locking lever 62. FIG. 1 shows the lock 10 with power applied such that the plunger 104 is drawn into the solenoid body 102 and the rod/tip assembly 106 extends from the first opening 128. The solenoid end 70 of the locking lever 62 is pushed toward the back of the housing by the rod tip assembly 106, which causes the locking lever 62 to rotate about the locking lever pin 66. This in turn causes the rocker arm end 72 of the locking lever 62 to move toward the front plate 14. This causes the rocker arm 64 to slide [[down]] up the slider surface 74 and expand the rocker arm spring 78. In this position the rocker arm 64 allows the coupling member 36 to extend from the hub mechanism, effectively preventing the outside one of doorknobs 40,42 from retracting the latch bolt 16.

Please amend the paragraph starting on Page 17, line 20, as follows:

Referring to FIG. 10, when power to the solenoid body 102 is off or lost, the plunger 104 is free to slide within the longitudinal bore 108. The rocker arm spring 78 urges the rocker arm 64 to slide [[up]] down the slider surface 74, which causes the rocker arm 64 to rotate about the rocker arm pin 76 and push in the coupling member 36. This action also causes the solenoid end 70 of the locking lever 62 to move ~~toward~~ away from the ~~flange~~ front plate 14 to push the rod/tip assembly 106 within the solenoid 102. With the coupling member 36 pushed in, the outside [[on]] one of doorknobs 40,42 can turn the doorknob mechanism 22 to retract the latch bolt 16. This provides the fail safe operation of the lock wherein the door can be opened when power is off or lost.

Please amend the paragraph starting on Page 18, line 1, as follows:

FIGs. 2 and 11 show operation of the lock 10 in the fail safe mode with the solenoid body 102, plunger 104 and rod/tip assembly 106 arranged as shown in FIGs. 7-9. In FIG. 2, the lock 10 is shown with power off or lost, which allows the plunger 104 to slide with the longitudinal bore 108. The solenoid spring 136 urges the plunger 104 and rod tip assembly 106 to extend from the second solenoid opening [[132]] 128, to push the solenoid end 70 of the locking lever 62 toward the back of the housing 12. Through the action of the locking lever 62 and rocker arm 64, the coupling member 36 extends from the hub mechanism, which effectively prevents the doorknobs 40,42 from retracting the

latch bolt 16. This arrangement provides a fail safe mode wherein the doorknobs 40,42 cannot open the door when power is off or lost.

Please amend the paragraph starting on Page 18, line 16, as follows:

In FIG. [[10]] 11, the lock 10 is shown with power on such that an electric signal is applied to the solenoid body 102, which creates an electrical field that draws the plunger 104 into the longitudinal bore 108. This draws part of the rod/tip assembly 106 into the bore 108 and compresses the solenoid spring 136 between the hemispheric tip 120 and the solenoid body 102. This action allows the solenoid end 70 of the locking lever 62 to move toward the front ~~flange~~ plate 14, and the action of the locking lever 62 and rocker arm 64 push the coupling member into the doorknob mechanism 22. This allows the doorknobs 40, 42 to retract the latch bolt 16.

Please amend the paragraph starting on Page 18, line 28, as follows:

One of the advantages of the present invention is that lock 10 can be quickly and easily changed to operate in either the fail safe or fail secure modes. If the lock 10 were arranged in the fail safe mode as shown in FIG. 1 the lock 10 can be changed to the fail secure mode by first removing the cover plate of the housing 12. The solenoid assembly 100 can be lifted out its cradle 132 and the rod/tip assembly 106 can be turned out of the plunger 104. The solenoid body 102 is then turned 180 degrees

and the ~~conical~~ solenoid spring 136 is placed over the second solenoid opening 130. The rod and tip assembly is then passed through the ~~conical~~ solenoid spring 136 and inserted into the opening in the plunger's bore 122 opposite the plunger's tapered end 114 and the lower threaded section 124 is threaded onto the plunger's threaded section 118. The solenoid assembly 100 is then placed back in the cradle 132 and the cover plate is secured on the housing 12.

Please amend the paragraph starting on Page 19, line 13, as follows:

To change back to fail safe mode, the front plate is removed and the solenoid assembly 100 is lifted out of the cradle 132. The rod/tip assembly 106 is turned out of the plunger 104 and the ~~conical~~ solenoid spring [[36]] 136 is stored. The solenoid housing is turned 180 degrees and the rod and tip assembly 106 is inserted into the first solenoid opening 128. The rod/tip assembly 106 is then turned onto the plunger's tapered end 114 and the solenoid assembly 100 is returned to the cradle 132. The cover plate is then secured on the housing 12.

Please amend the paragraph starting on Page 19, line 23, as follows:

Referring now to FIGs. 1 and 2 the lock 10 can also comprise switches 160a-b that can be activated depending on the condition of certain internal components of lock 10. Switch 160a can be activated depending on [[the]] whether safety latch 20 is retracted, switch 160b can be activated depending on the

position of locking lever 62, and switch 160c can be activated depending on the position of ~~doorknob~~ hub mechanism 22. The output of switches 160a-b can be sent to a security control center over conductors 138 and 139 so that the state of the lock 10 can be monitored.

Please amend the paragraph starting on Page 20, line 1, as follows:

The spring 136 can be arranged to ~~provides~~ provide advantages over [[the]] conventional springs and can improve both the performance and life of the lock 10. The preferred spring has a spring rate (ratio of load over distance of compression) that closely matches the power curve of the solenoid. The preferred spring can also be compressed without stacking of the turns of the spring, which helps prevent locking of the spring turns over other spring turns and allows the spring to compress to a very small height. The spring 136 can be accomplished by springs having many different shapes.

Please amend the paragraph starting on Page 20, line 12, as follows:

FIG. 12 shows one embodiment of a ~~conical~~ solenoid spring 136 according to the present invention wherein the diameter of the spring turns is the largest [[and]] in the spring bottom 140 and smallest at the spring top 142. This arrangement allows the "spring rate" of the ~~conical~~ solenoid spring stroke to more closely match the power curve of a solenoid. A conventional linear solenoid generates less force at the beginning of its

stroke, with the force increasing through the stroke. As the plunger 104 is drawn into the longitudinal bore 108, the force generated increases, which results in a non-linear solenoid "power curve".

Please amend the paragraph starting on Page 20, line 23, as follows:

FIG. 13 shows a graph 150 comparing the performance of a typical helical spring 152 and one embodiment of a ~~conical~~ solenoid spring 154 according to the present invention. The graph 150 shows the load generated 156 ~~verses~~ versus the spring length 158. A helical spring exerts an equal or linear force throughout its compression stroke. In comparison, the ~~conical~~ solenoid spring exerts much less pressure at the beginning of its compression stroke compared to the end of the stroke. This provides the advantage of the ~~conical~~ solenoid spring experiencing less stress on the spring material, which can result in the spring operating longer without a failure.

Please amend the paragraph starting on Page 21, line 3, as follows:

The ~~conical~~ solenoid spring provides additional advantages related to the life of the solenoid assembly 100. When a helical spring is used to oppose plunger movement, the solenoid should be strong enough at the beginning of its stroke or power curve (the point where it is the least efficient) to compress the spring. The ~~conical~~ solenoid spring can be arranged to more closely match/track the power curve of the solenoid such that

when a ~~conical~~ solenoid spring is used, a lower current solenoid can be used. Lower current allows the solenoid to operate at a cooler temperature and can extend the operational life of the solenoid.

Please amend the paragraph starting on Page 21, line 21, as follows:

The lock 10 also comprises an improved latch bolt arrangement that can prevent latch bolt damage compared to prior latch bolts. Prior latch bolts utilize a holding plate as a retractor to align the latch bolt. When excessive torque is applied to the hub mechanism in the reverse of its intended operational direction, ~~damaging~~ damage to the internal components of the lock may occur, [[and]] causing the lock to fail.

Please amend the paragraph starting on Page 21, line 29, as follows:

FIG. 14 shows one embodiment of a latch bolt 16 according to the present invention that comprises a retractor 160 that is shown in more detail in FIG. 15. The retractor 160 is elongated and keyed to the lock housing. This shape or the keying of the retractor allows the latch bolt finger 26 of the hub mechanism 22 (shown in FIG. 1) to float on top of the retractor without being actually connected to it. As shown in FIG. 1, the lock 10 comprises a metal post 161 [[the]] that prevents the hub mechanism from rotating too far toward the front plate 14. However, there is no mechanism to prevent damage when the hub

mechanism is rotated too far in the opposite direction. The retractor 160 is arranged to bypass the retractor when an excessive force is applied to the hub mechanism 22. The latch bolt finger 26 instead slides over the top of the retractor 160 when the retractor reaches the back of the lock housing. This reduces the possibility of damage to the lock's internal components that could cause the lock to malfunction. The latch bolt 16 also comprises fewer parts compared to prior latch bolts, making the latch bolt 16 easier to manufacture and more reliable.

Please amend the paragraph starting on Page 22, line 17, as follows:

The retractor 160 can also be made of a material that melts at a certain temperature such that the lock 10 does not function and the door cannot be opened after the temperature exceeds the temperature. One embodiment of a retractor 160 according to the present invention can be made of glass filled nylon that melts at a temperature of approximately 450 degrees. Glass filled nylon provides the additional advantage of being resilient and self lubricating to allow the latch finger to slide across it efficiently.